



SLDS Issue Brief

Addressing Teacher Labor and Teacher Quality Questions

State and local education agencies across the country face challenges related to understanding and managing their teaching staff to best help students learn. Statewide longitudinal data systems (SLDSs) offer valuable information about teacher labor markets that can be used to analyze supply and demand, inform budget and staffing decisions, and recruit qualified teachers in critical subject areas.

Many states have started to combine data from local and state staff information systems as well as postsecondary educator preparation programs to gain greater insight into the qualifications and placement of their teachers. This brief describes three of the most common questions about teacher labor markets that state education agencies seek to answer with SLDS data. It also provides examples of how states are gathering, reporting, and using teacher labor market information.

CEDS Connections for Teacher Labor Market Analysis

The questions that state and local education agencies have about their teaching staff vary based on local challenges and needs. However, there are common themes throughout the country. Education agency representatives in the SLDS Teacher Labor Market Analysis Workgroup identified three broad questions at the foundation of many states' efforts to analyze their human capital:

1. What are the placement patterns and demographic implications of new teachers, based on the location of the assigned school and the distance from the teacher preparation program and the teacher's permanent address while in postsecondary?
2. Are new teachers exiting teacher preparation programs with endorsements that meet the needs of critical shortage areas?
3. Does the type of licensure impact teacher quality, retention, salary, or length of career?

Workgroup members reviewed the data elements, calculations, and types of analysis needed to address each of these questions. They used the Common Education Data Standards (CEDS) Connect tool (<https://ceds.ed.gov/connect.aspx>) to publish steps and recommendations for these analyses using CEDS's standardized set of data element names and definitions. The three teacher labor market analysis Connections are available online.

The following sections describe in greater detail the three questions, their associated CEDS Connections, and examples of states' approaches to addressing each question.

What Are the Placement Patterns and Demographic Implication of New Teachers, Based on the Location of the Assigned School and the Distance From the Teacher Preparation Program and the Teacher's Permanent Address While in Postsecondary?

What is the challenge?

Supply and demand for educators can vary greatly among geographic locations within a state. Many states have observed shortages in the number of teachers available to fill positions in certain areas, as well as difficulties finding educators with specific credentials or demographic backgrounds that are in high demand in those areas. The locations of colleges and universities with educator preparation programs and the number of

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Marsha Lewis
Ohio Education Research Center

Jay Pennington
Iowa Department of Education

Shannon Stackhouse
Michigan Department of Education

Angie Tombari
Kentucky Center for Statistics

Members of the SLDS Teacher Labor Market Analysis Workgroup

Corey Chatis
Carla Howe, Ph.D.
Kathy Gosa
SLDS Grant Program, State Support Team

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graduates those programs produce also play a role in teacher labor markets in different parts of the state.

When school districts struggle to hire qualified teachers to meet the academic and cultural needs of their communities, there might be broader issues related to the education-to-workforce pipeline for educators, teacher licensure priorities, and academic equity for students. Geographic data about the locations of teachers, their educator preparation programs, and available teaching positions help education agencies highlight and understand these issues.

About the CEDS Connection

The CEDS Connection addressing placement patterns for new teachers contains 50 data elements that education agencies can use to identify and analyze geographic patterns in teacher employment. State definitions for terms such as “new teacher” vary, but the analysis recommendations in the Connection demonstrate how data elements can be used to determine whether an educator is a new teacher as well as his or her primary residence, teaching assignment location, and postsecondary program location. Additional data elements about the demographic characteristics of the teacher and the students at his or her school can aid in equity analysis across schools and districts.

Using these data elements, education agencies can examine questions about employment patterns for new and inexperienced teachers, whether teachers seek positions near their postsecondary programs or near their hometowns, and the schools and districts where they are employed. States also can compare school districts along dimensions such as income level, rural or urban setting, and student demographic characteristics.



View the CEDS Connection
<https://ceds.ed.gov/connectReport.aspx?uid=3111>

Education agencies can supplement the data elements identified in the Connection with others that describe additional characteristics of educator preparation programs, special community designations, and topics of local interest.

State example: Ohio

The Ohio Department of Education classifies Ohio public school districts into eight typologies based on data about their geographic location and other characteristics (see table 1). The Ohio Education Research Center used these typologies in its 2017 labor market analysis and found differences in the needs and challenges among the eight district types. For example, superintendents in rural, high-poverty districts expressed greater challenges filling hard-to-staff positions in areas such as high school science and some related services such as school psychologist.

State example: Michigan

Like many states, Michigan is exploring data and analyses that will shed light on teacher supply and demand trends that can differ significantly across instructional subjects and across regions in the state. The Michigan Department of Education (MDE) has started by creating datasets and reports that examine teacher certification trends, the racial diversity of the teaching workforce, and teacher mobility or turnover. It also calculates and reports annual metrics on the number of new teachers, certifications in suspected shortage areas, permit use, and enrollment in educator preparation programs.

Typology Code	Description	Number of Districts	Number of Students
1	Rural district with high student poverty and small student population size.	124	170,000
2	Rural district with average student poverty and very small student population size.	107	110,000
3	Small town district with low student poverty and small student population size.	111	185,000
4	Small town district with high student poverty and average student population size.	89	200,000
5	Suburban district with low student poverty and average student population size.	77	320,000
6	Suburban district with very low student poverty and large student population size.	46	240,000
7	Urban district with high student poverty and average student population size.	47	210,000
8	Urban district with very high student poverty and very large student population size.	8	200,000

Table 1. Ohio's school district typology groups the state's school districts into eight categories based on geographic and demographic characteristics.

In addition to its internal analyses, the MDE is working with universities and research organizations to answer the following questions about the teacher labor markets and educator preparation programs:

- What are the characteristics of Michigan residents who hold a teaching certificate but do not teach? What are the reasons that certificate holders give for not being part of the teaching profession? Are there incentives that could encourage Michigan residents who hold a teacher certificate but do not teach to return to the profession?
- What are the trends in teacher supply, demand, shortage, and surplus in Michigan public schools over the last 5 years (by certification area, locale, and teacher compensation level)? What will teacher supply and demand look like in the next 5 years?
- What incentives would encourage new teachers in Michigan to teach in hard-to-staff geographic areas?
- What is the relationship between teacher retention and teacher characteristics, school characteristics, teacher evaluation practices, and mentorship?

The MDE combines staffing and educator data with geographic information and school characteristics for its analyses. The department is also collaborating with the Michigan Talent Investment Agency to use wage data to answer research questions about educators.

The MDE plans to share the outcomes of its analyses with internal and external stakeholders to help shape policy and practice around educator preparation and managing the educator workforce. In the future, the department plans to release more of its workforce data publicly, including via the MI School Data portal (<https://www.mischooldata.org/>), for transparency and stakeholder access.

Are New Teachers Exiting Teacher Preparation Programs With Endorsements That Meet the Needs of Critical Shortage Areas?

What is the challenge?

When schools have trouble finding well-qualified educators to fill teaching positions, the state may define specific locations or teacher licensure and endorsement topics as critical shortage areas. Many states offer education loan repayment programs and other incentives for new teachers to take jobs in critical shortage areas. Examining the supply of teacher preparation program students graduating with specific endorsements helps education agencies anticipate which shortage areas are likely to remain critical and develop strategies to recruit and retain qualified teachers.

About the CEDS Connection

The CEDS Connection for analyzing teacher supply for critical shortage areas helps users define which staff

members are new teachers, their endorsement areas, and the schools and endorsement areas with critical shortages. The 20 data elements in the Connection cover teachers' credentials and licensure information, school employment data, and characteristics of schools that might be affected by critical teacher shortages. It also suggests data elements related to teaching job postings and the level of difficulty of filling those positions.

States' definitions for critical shortage areas can vary. In addition to unfilled teaching positions, education agencies might calculate shortages by considering the number of positions filled by probationary teachers or teachers whose endorsements do not match their roles. The analysis recommendations in the Connection offer examples of how some states have defined and calculated critical shortage areas.



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<https://ceds.ed.gov/connectReport.aspx?uid=3112>

State example: Kentucky

The Kentucky Center for Statistics (KYStats), which manages the state's P-20W+ (early childhood through workforce) SLDS, analyzed teacher labor data to project staffing needs for the state's public schools and districts. KYStats used program enrollment and completion data from educator preparation programs and personnel data from the state education agency to compare prospective teachers' credentials with the areas of greatest need in the schools. It also examined open teaching positions advertised on a statewide hiring website to determine the number, location, and types of hard-to-fill teaching jobs.

The resulting report maps the supply of and demand for teachers throughout the state (see figure 1 on page 4). Teacher labor supply includes the number of existing teachers, new teacher preparation program graduates, and former teachers returning to the profession. The demand for teachers to serve a relatively stable student population is based on the number of teachers retiring, moving to different school districts, or leaving the profession. Upcoming supply and demand analyses might incorporate additional SLDS data and critical shortage area calculations to predict future demand for teachers.

KYStats's analysis found that about half of the state's supply of teacher labor came from new teachers who recently completed teacher preparation programs. Kentucky teacher preparation programs produce about 3,000 graduates each year, about a third of whom specialize in elementary school education. Other common areas of specialization for new teachers include teaching exceptional children and social studies (see figure 2 on page 4). In comparison, the

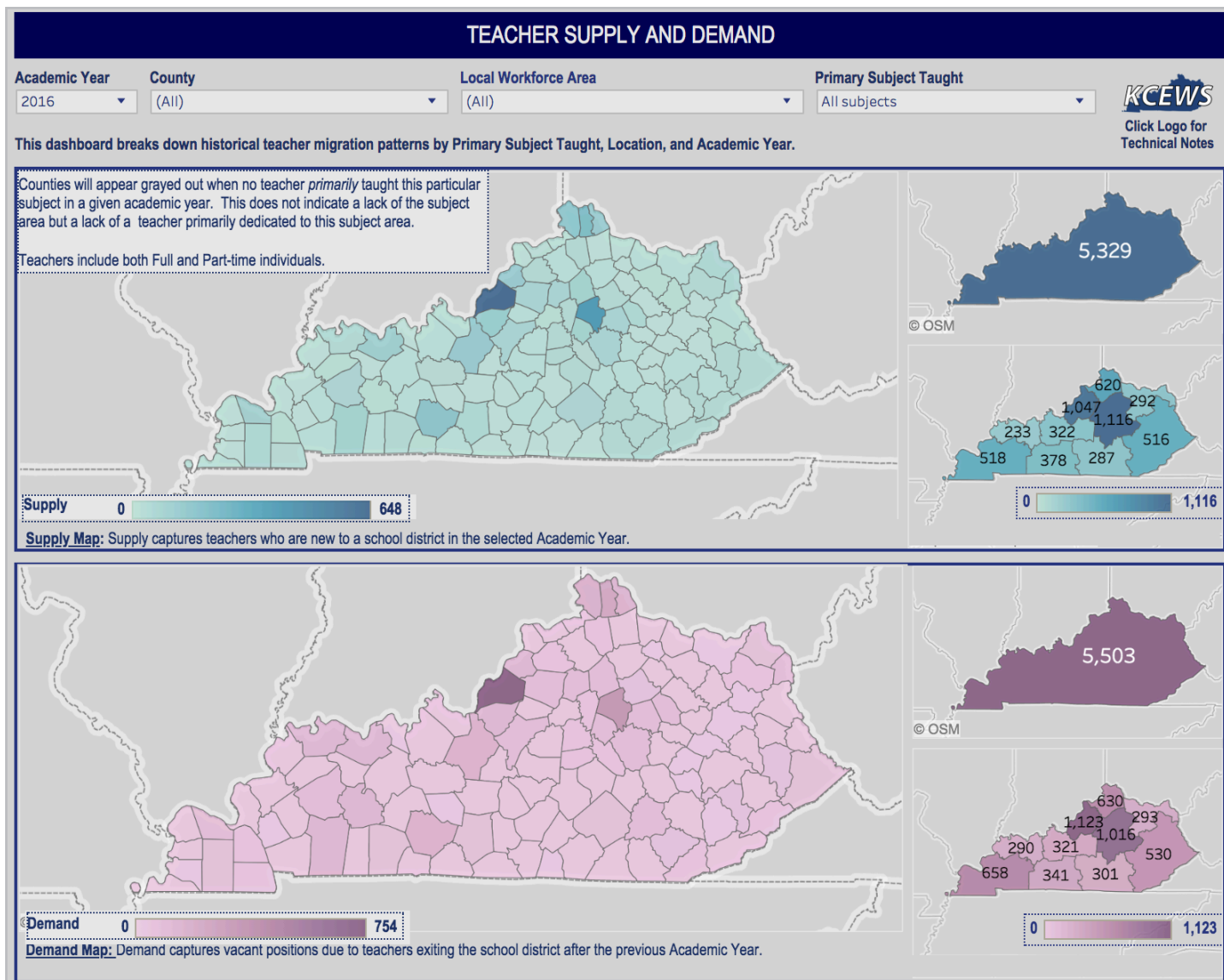


Figure 1. Kentucky's Teacher Supply and Demand Report shows teacher labor market data for each county and the state as a whole. Users can filter the data by teaching subject.

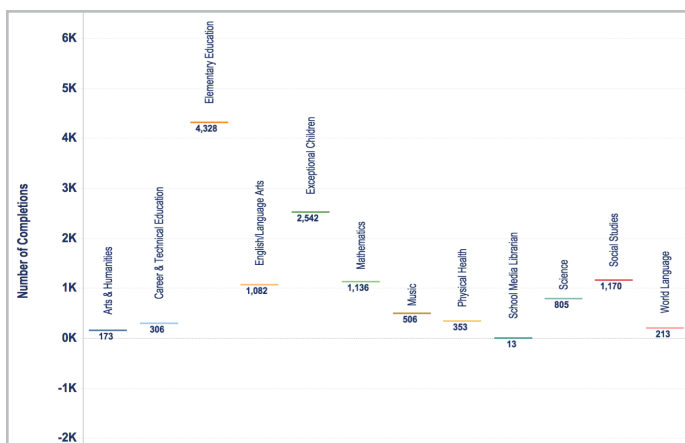


Figure 2. Part of Kentucky's Teacher Preparation Feedback Report shows the areas of specialization for recent teacher preparation program graduates. The most common specialization include elementary education, exceptional children, and social studies.

specializations in highest demand by schools and districts are in teaching math, science, and exceptional children.

The analysis also showed a strong geographic component to teacher labor markets in Kentucky. New, first-year teachers tended overwhelmingly to seek jobs near their teacher preparation programs. The strong influence of teacher preparation programs over their local labor markets emphasizes the importance of aligning the credentials earned by teaching program graduates with the needs of nearby districts.

Does the Type of Licensure Impact Teacher Quality, Retention, Salary, or Length of Career?

What is the challenge?

The type of licensure that educators hold can affect their job opportunities, earnings, and career path. Understanding

these dynamics can help schools and districts recruit and retain teachers with needed qualifications.

About the CEDS Connection

The CEDS Connection contains 19 data elements that help define licensure types and employment outcomes for teachers. A teacher's licensure type, retention, salary, and length of career are determined using K12 school staffing data. The Connection's analysis recommendations offer two approaches to calculating teacher quality—one based on the schools' staff evaluation data and another based on student growth as measured by assessment results. The analysis recommendations also include examples of how two states define and report teachers' employment outcomes.



View the CEDS Connection

<https://ceds.ed.gov/connectReport.aspx?uid=3110>

State example: Iowa

In an effort to retain qualified teachers for its largely rural public school system, the Iowa legislature established the Iowa Teacher Leadership and Compensation System. This initiative lets school districts create career pathways for educators to grow professionally by taking on mentorship roles and other responsibilities, for which they can receive additional compensation.

The Iowa Department of Education analyzes its teacher labor market to highlight key areas of need in its districts and to understand the impact of the Teacher Leadership and Compensation System. At first glance, the state's overall

teacher retention rate of 93 percent appeared to be strong, but a closer look at the data revealed significant differences among teachers with different specializations and levels of experience. Inexperienced teachers had an attrition rate of more than 60 percent during their first 5 years of teaching. The state also faced shortages of qualified teachers in the areas of science, special education, English as a second language, and family and consumer science, as well as for schools in rural locations.

By analyzing the connection between teachers' licensure types and their careers, the Iowa Department of Education can better understand its staffing needs and determine how its recruitment and retention efforts influence teachers' effectiveness and career decisions.

Conclusion

State education agency representatives developed CEDS Connections to address three common questions about teacher labor markets. The Connections are designed to be broadly applicable, and states can adjust the data elements and calculations to fit the nuances of their individual data collections and staffing interests.

In addition to helping state education agencies understand and address their staffing challenges, teacher labor market analyses can be used to evaluate the impact and return on investment of state and national initiatives to improve educators' effectiveness, such as the U.S. Department of Education's Teacher Quality Partnership program. The insights gained from answering questions about teacher labor markets and teacher quality will help education agencies provide better support both to educators and to the students they serve.

Additional Resources

Conducting Teacher Labor Market Analyses: SLDS Webinar
<https://slds.grads360.org/#communities/pdc/documents/14972>

Iowa Department of Education
<https://educateiowa.gov/>

Kentucky Center for Statistics
<https://kystats.ky.gov/>

Kentucky 2016 Teacher Preparation Feedback Report
https://kcewsreports.ky.gov/t/KCEWS/views/TPFR_2016_FINALV5/TPFR2016Story?:embed=y&:showShareOptions=true&:display_count=no&:showVizHome=no

Kentucky Teacher Supply and Demand Report
https://kcewsreports.ky.gov/t/KCEWS/views/TSD2v5_ss/Dashboard1?:embed=y&:showAppBanner=false&:showShareOptions=true&:display_count=no&:showVizHome=no

Michigan Department of Education
<https://www.michigan.gov/mde/>

Ohio Department of Education: Typology of Ohio School Districts
<http://education.ohio.gov/Topics/Data/Report-Card-Resources/Report-Card-Data-Forms-and-Information/Typology-of-Ohio-School-Districts>

Ohio Education Research Center
<http://oerc.osu.edu/>

Using Data and Research to Inform and Improve Educator Preparation: SLDS Webinar
<https://slds.grads360.org/#communities/pdc/documents/14898>

Using SLDS Data to Inform Educator Human Capital Decisions: SLDS Webinar
<https://slds.grads360.org/#communities/pdc/documents/7822>